



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B22      BYPASS RATIO: 5.3  
 UNIQUE ID NUMBER: 3CM031      PRESSURE RATIO ( $\pi_{co}$ ): 24.4  
 COMBUSTOR:  
 ENGINE TYPE: TF      RATED THRUST ( $F_{oo}$ ) (kN): 101.0

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>oo</sub> (g/kN) or SN	6.4	48.6	52.4	15.4
AS % OF ORIGINAL LIMIT	32.7	41.2	59.0	65.2
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			73.7	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			90.3	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			102.6	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			124.0	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 - DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>oo</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	1.021	0.10	0.50	23.10	12.0
CLIMB OUT	85	2.2	0.844	0.10	0.60	19.00	10.5
APPROACH	30	4.0	0.298	0.10	2.50	10.00	0.0
IDLE	7	26.0	0.105	2.50	22.80	4.50	0.0
LTO TOTAL FUEL (kg) or EMISSIONS (g)			390	432	4002	4560	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>oo</sub> (g/kN) or AVERAGE SN (MAX)				4.2	39.6	45.2	12.0
SIGMA (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)							

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.8-98
TEMPERATURE (K)	294-297
ABS HUMIDITY (kg/kg)	0.01-0.0157

### FUEL

SPEC	Jet A
H/C	1.86-1.97
AROM (%)	16.9-17.7

MANUFACTURER: CFM International  
 TEST ORGANIZATION: CFM56-7B Eval Engineering  
 TEST LOCATION: Peebles Test Operation (PTO), Peebles, Ohio  
 TEST DATES: 01/07/1996

### REMARKS

1. FAA Certification Report CR-997, Dec 96.
2. Engine S/N 874-101/01

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)